THE VETERINARY RECORD

A Weekly Journal for the Profession.

No. 417. JULY 4, 1896. Vol. IX.

Horseless Carriages.

The very general adoption of the bicycle, as a means of locomotion, as an instrument of sport and pleasure, and as a carriage for lighter goods, has probably caused inventors to turn their attention to other motors. We are promised engines working by steam or oil which are to draw brewers' drays, timber waggons, and agricultural carts. Carriages to carry passengers are to be propelled by electricity, steam or oil. Tramcars are to run without horses, and omnibuses are to be driven by engineers.

Some good people have a notion that all this great change is about to come upon us suddenly, and that it is now only prevented by a law which forbids engines to travel along ordinary roads, except under conditions as to pace, structure and guidance which are almost prohibitive. The artificial obstruction to horseless vehicles will probably be soon removed. A Bill has passed the House of Lords and is now in Committee in the House of Commons which will remove all the legal difficulties in the way of road carriages not moved by horses. It is not improbable that this Bill may become law in the autumn, and then the battle—equine *versus* other motors—will begin.

With the departure of horses from the country the time will have arrived for the retirement of veterinary surgeons. If we have to face merely a very large reduction in the number of horses kept for pleasure or business, we have a serious question before us, and one to which the younger men in the profession, as well as those who have sons intending to succeed their fathers, may well devote some thought.

In America there are now very few tramcars drawn by horses. In most European capitals the tramcars are propelled by steam or electricity. In Birmingham Bristol, Edinburgh and other of our large towns the horse has begun to disappear in front of the other motor powers. We should think, in face of this evidence that the horse is not indispensable, the time will soon arrive when all vehicles that run on rails will be propelled by steam or electricity. The only check to the change is that a sale of horse stock, harness, stables, etc., is usually attended by loss, while the purchase of a new plant is attended by a large demand on capital. The older companies are less likely to make a change, than are new companies to adopt the new motors.

No doubt a strong attempt will be made to force forward all kinds of horseless motors. There are many (mostly foreign) inventors waiting to sell their patents. There are always company promoters ready to oblige either inventors or investors with their assistance. There are also capitalists willing to "throw a sprat to catch a mackerel," and some millions, "mostly fools," anxious to try their luck in any new venture. So soon as the law is altered to permit horseless carriages on the roads and streets, so soon shall we have a few sample machines about, and many companies formed for the production of others. If the public subscribe freely big works and expensive machinery will be laid down, and then in self-defence they must be kept going. It seems certain that in time a motor such as steam or electricity will drive the horse out of use for much of the heavy work now done with drays and lorries. Probably too the omnibus will some day convey its passengers without horses. The ordinary employer of the horse has no sentiment about his vital motor. To him the horse is a machine, and he would just as soon use an engine if he could save sixpence by doing so. Local authorities responsible for the sanitary condition of the streets would doubtless prefer no horses.

The man who knows and likes a horse will have one always. Most men, until they have passed their fortieth year, prefer a two-wheeled trap—there will be no two-wheelers when the auto-car has ousted the horse. To sit in a carriage without reins and whip and with no sound of horse's hoof, is an experience not to be tolerated by any one who has for years got used to them. Not till next generation has grown up with steam, oil and electricity, will any one outside the engineering profession take his pleasure in a horse-less carriage. Not even the next generation will discard the horse for machinery unless something like a revolutionary change is made in the present mechanical horrors. The vibration of the machinery necessary to move a light carriage is a most unpleasant sensation, and if felt on good level roads where the auto now "gives you a show," what will it be on an average turn-pike road? There are other discomforts; steam requires a fire, oil stinks, and electricity is only available when frequent opportunities exist for taking in a fresh supply.

In thirty years time we shall perhaps find automotors have replaced the horse for heavy traffic on good roads, and in sixty years to come engineers may have produced a motor carriage in which a man and his wife can have a drive in comfort. We are sanguine enough to believe that some centuries of evolution will be required to induce the horsemen of this Kingdom to prefer a machine to a horse, and therefore we advise all who are considering the possibilities of the veterinary profession as a means of livelihood, to put aside the downfall of the horse as an item likely to affect their chances.

CASES AND ARTICLES.

CLINICAL NOTES.

By E. Wallis Hoare, F.R.C.V.S., Cork.

Luxation of the Patella, Fracture of the Pubis' Death from Internal Hæmorrhage.

Subject.—A cart horse, six years old.

Clinical History.—While starting a heavy load the animal slipped and fell, but got up after a few struggles, and showed excessive lameness in the near hind leg. When brought for treatment about 5 p.m. the limb was carried with a circular motion during progression, the heel only being allowed to touch the ground. Upon examination, the stifle was very tender to pressure, and while standing the limb was partially drawn backwards. No luxation of the patella could be detected.

Fomentations, and a stimulating liniment were prescribed. Next morning it was reported that the horse was found dead in his stall.

Autopsy.—Complete luxation of the patella outwards; the trochlea of the femur was of a bluish-red colour and the surrounding tissues were infiltrated.

On opening the abdominal cavity a large quantity of clotted blood was found in the pelvic region, and a fracture of the pubis was revealed. The fracture extended through the *symphysis* pubis, and through the body of the bone, causing extremely sharp projections; the tissues of this region were torn and contused, and the obturator vessels lacerated. The bladder was bluish-red in colour and contained a small amount of blood-stained urine.

Remarks.—It seems probable that these severe injuries were caused by the horse getting "cast" in the stall and struggling violently. My examination of the patient during life was not as complete as it should have been, as I was pressed for time, and owing to the hour there was not good light.

Fracture of the Body of the Last Lumbar Vertebra.

Subject.—A farm mare, five years old.

History.—Was left by attendant in a cattle stall in the morning for a few hours, on returning he found the mare with her head and one fore leg in the low manger, the body lying in a semi-curved manner outside. On extricating her from this position she was unable to rise.

On my attendance I found the mare lying at full length and "blowing" freely. She had total loss of motor power in the hind quarters, and also showed loss of sensation, but if punctured deeply with an exploring needle a very slight movement was induced. On the head being raised she made no attempt to get up but again regained her former position. Examination *per rectum* gave negative evidence, and all attempts to raise her proved fruitless. The urine was withdrawn by catheter and was normal. The hind limbs would remain in any position they were placed.

Diagnosis.—Fracture of a vertebra, and destruction advised. The owner would not consent, but decided to keep the animal until the following morning, when, seeing the hopeless nature of the case, he had her shot.

Autopsy.—After a very careful examination a fracture was detected in the body of the last lumbar vertebra, a little over half-an-inch from the articulation with the sacrum.

Remarks.—The portion fractured was very small in comparison with the symptoms produced. It seems remarkable how so small a portion of the body of the vertebra could be fractured, but the fracture was completely through in a perpendicular direction, and considerable pressure on the spinal cord must have resulted.

The diagnosis in such cases is not by any means unattended by difficulty when we consider the different causes which may produce paralysis of the hind extremities in the horse. One point worth mentioning in connection with this case was that the attendant stated this animal moved always with a peculiar stiff action in the hind quarters, especially when going down hill. I did not observe anything abnormal in connection with the vertebræ, probably a more minute examination might have revealed it.

Ulceration of the Intestine, Perforative Peritonitis—Death.

Subject.—A collie dog, seven years old.

Previous History.—Healthy, with the exception of occasional attacks of mange. A few days previous to present illness the animal was dull, off his feed, etc.

Clinical History.—The owner stated that while bringing the animal through town a fainting fit came on, but this was of short duration.

The following symptoms were presented:—Pulse quick, weak and wiry in character, respirations greatly accelerated and thoracic, abdominal walls retracted, rigid to touch and tender on pressure, no tympanites, tail carried between the legs, haggard expression of countenance, no appreciable evidences of pain, great irritability of temper and made vicious attempts to bite on being handled. Gave a sedative draught and administered an enema. The latter brought away a large amount of hard dry fæces. Shortly afterwards there was free vomition, and in about two hours after this the animal was found dead.

Autopsy.—Abdomen greatly distended; on opening abdominal cavity a large quantity of blood-stained fluid escaped, and all the evidences of acute peritonitis were present. About the middle of the Ileum a perforation of the intestinal wall was present, with ulcerated edges. Around this a small pouch or dilation was formed.

Enquiry from the owner elicited the information that at some time previously the dog was supposed to have swallowed a small india-rubber ball, but evidence on this point was not conclusive.

Remarks.—The diagnosis of peritonitis in the dog is frequently a difficult matter, the symptoms being often obscure, and not leading one to suspect the serious nature of the case. In animals of certain dispositions appreciable evidence of pain may be absent and still acute pain may be present.

CONDITIONING THE CAMEL.

We use the word "conditioning" as meaning the method of inducing the greatest fitness for a special purpose. The racehorse is "conditioned" in this country by a judicious combination of food and work. His special purpose is to gallop as fast as he can. The camel is to us an unknown animal, used in deserts where water is scarce. His special forte is to last longer than any other animal where water is unattainable. We had a sort of hazy idea that this special quality was due to the camel having in his interior a sort of resevoir where surplus fluid was stored until required by the general system.

The special correspondent of *The Daily News*, relating his experiences in the Soudan, gives an account of the native treatment of camels which is novel and interesting.

"We found that the preparation of our camels for the road would delay our start somewhat longer than we had contemplated, as owing to an accident, or the carelessness of a groom, some of the camels had while being shipped the previous afternoon, got at the water and taken a hearty drink before they could be dragged away. For the camel, when about to start on a desert journey, is prepared for the pleasures of the road by being kept from water for a period varying, according to his condition, from three to six days. During this period he is fed on dhurra alone—the grain and dried stalks—even chopped straw being considered too rich a dietary for him. Our beasts had done little or no work since our march from Assouan, but the three days that would have sufficed to get them in training became five by reason of their wicked indulgence in drink of the day before. For five days, then, we had to kick our heels and stew in the stewing atmosphere of Korosko. Each day when we visited our camels, who during this novitiate wore both knees spliced up to their shoulders, in addition to having their heads fast bound to a stake or a mimosa bush, we speculated as we gazed on their great bodies growing daily leaner in the absence of water—as to the amount of earth the human system can absorb, and on the possible necessity, if the dust storms continued, of taking another camel to carry our earthly envelopes. Our sojourn, however, irksome though it was, was useful in two ways. First, though this is a minor matter, it gave us further insight into the idiosyncracies of the camel. The good beast does not take kindly to his dry nursing, and endeavours day and night to circumvent his keepers and compass a drink. Tie one ankle to his shoulder, he will walk on three legs with great dignity and no apparent discomfort; tie both, and he will struggle on his knees awhile, until it occurs to him that he can eat the binding ropes. Watching at this meal, I asked the guide why he did not use chains instead of ropes. "Because," he said quite gravely, "the camel would eat then his leg." And really there is so much leg to a camel that, no doubt, he would hardly notice one more or less. My own riding camel, a huge, powerful beast, with all the unostentatious persistency of a screw-jack, was chained by the head, to a mimosa bush, in addition to his other bonds. I watched him day by day with heightened interest. The thorns and smaller branches made him but a toothsome lunch; the bigger branches kept him happily busy for a day. Then he set to work on the stump. He was—good honest beast—a glutton for work. He had eaten several feet of that tree ere the time arrived for his release. Another day would have seen him free and swelling himself to bursting point in the adjacent Nile."

The question arises whether this compulsory abstinence is really the right way of conditioning the camel against thirst; or is it only cruelty enforced by ignorance. Some of our A.V.D. officers might put us right on the methods of handling the camel.

*SOME EQUINE THROAT AFFECTIONS.

Gentlemen,—The Art of Medicine progresses very slowly. Our nomenclature is always ahead of our pathology and fortunately a name, compounded of some Latin or Greek words, is very often sufficient to inspire a client, or even a student, with confidence and satisfaction that could not be much surpassed if the word really indicated the exact position and definite nature of the disease.

The differentiation of diseases is not yet perfect. We have advanced a good way since the primitive doctors were satisfied to diagnose "Something wrong in the chest" or "Something wrong in the abdomen." We can now distinguish between a cardiac and a pulmonary affection. We canlocate disease in the stomach and in the intestines, sometimes in the liver and very occasionally in the spleen. The differentiation of diseases is of great importance. To determine the limitations of the affection and to correctly diagnose the nature of the malady is to enable us to apply treatment with more precision and so to vastly increase our chances of success.

In the human subject affections of the throat are diagnosed with great minuteness, and specialists can usually find a distinct name for every variation of symptoms connected with the region of the throat. Possibly some of this minute sub-division is a little over-refined, but undoubtedly the speculum and the electric light have enabled the human surgeon to reach an accuracy in diagnosis which we can admire but cannot imitate. Our grandfathers called all acute throat affections Angina, and our fathers recognised two varieties—Laryngitis and Pharyngitis. We describe, in books, a fine variety of throat inflammations, such as Catarrhal, Croupous, Necrotic, etc. I very much doubt whether in practice we differentiate any more minutely than our fathers, and I suspect that some of our authors, especially foreign ones, rely as much upon analogy and imagination as upon observation and fact for their classifications and divisions.

Amongst the causes of throat disease I am not yet able to relinquish our old friend 'cold.' Some few sore throats probably are due to cold, but for the majority some other origin must be sought. Horses are from foal-hood submitted to all sorts of weather without exhibiting any throat disease. Old seasoned horses in towns seldom suffer. Young horses during the first few weeks of coming to town from the country are frequently the victims of "sore throats." Where one case of sore throat occurs we usually have others follow, and some seasons show a specially large number of cases. The occurrence of a a large number of cases about the same time in a district may possibly be due to the same atmospheric conditions affecting all the horses, but to my mind it suggests contagion as a more likely cause.

* A paper read by Mr. W. Hunting before the Members of the Lincolnshire and the Royal Counties V.M.A.

Of course I am now referring to those cases of a local character, accompanied by little or no systemic disturbance. When we come to throat affections accompanied by febrile symptoms early in the case, I look upon them as local complications of a specific disease. General systemic disturbance occurring later on in the course of a throat affection may arise as the direct result of the local inflammation.

It would be widening the scope of this paper much further than I desire to enter into any special discussion of the throat diseases which occur as complications of strangles and influenza. We recognise them as common.

More uncommon is the throat lesion seen in Anthrax, and I may ask any member who has seen this condition in the horse to advise us as to the ready dectection of such a serious disease. Anthrax is not common in London, and my experience does not include a case in the horse. The extent and rapidity of the swelling are, I suppose, the chief symptoms which would guide a practitioner to diagnose anthrax, and so take all the precautions necessary with that disease.

There is another specific disease we are well acquainted with in London that occasionally gives rise to throat trouble. Every now and then a horse suffering from glanders in an undeveloped form has ulceration commence on the larynx, or on the folds of membrane at the base of the epiglottis. The first symptom of this may be "roaring" and the obstruction to inspiration increases so rapidly that suffocation soon becomes imminent. Many a man has unsuspectingly inserted a tracheotomy tube in such a case.

Some medicinal agents give rise to injury of the pharynx. Ammonia for instance when insufficiently diluted. Chloral when given in solution is often followed by a nasty cough and some difficulty in swallowing for a day or two. In a few cases I have noticed the long continued inhalation of chloroform have an injurious effect on the throat—chiefly on the larynx.

It is rather remarkable how few cases of throat injury veterinarians see resulting from the passage of sharp or rough objects through the pharynx. Horses swallow pieces of wire and nails. We know this from the frequent occurrence of intestinal calculi, all of which have some nucleus which might not have passed harmlessly into the Œsophagus. It is possible some cases do owe their origin to mechanical injury but are not diagnosed. The horse presents special difficulties to the surgeon who desires to inspect the larynx or pharynx. The velum palati and the great length of the maxillary bones render a useful examination nearly impossible. A pharyngeal gag and speculum, separate or combined, which will enable us satisfactorily to view the pharynx of the horse has not yet come under my notice. The anatomical conformation and the absence of suitable instrumental assistance undoubtedly is a great cause of our rather crude knowledge of equine throat affections.

The symptoms of throat trouble in the horse are tolerably clear. Refusal of food, salivation and poking the nose at once indicate something wrong with the throat. Difficulty in swallowing solid food, as displayed by gulping and by the induction of cough, is a well-known symptom. Difficulty in swallowing fluids as shown by the return through the nose is perhaps the strongest evidence of all. With them we may have swelling, soreness on pressure, hardness to the touch and coughing.

Now what special combinations of these symptoms help us to diagnose the nature of the throat mischief or to locate exactly its seat?

I think we may tolerably easily separate most of our cases of pharyngitis from those of laryngitis. I say 'most of' because it is no uncommon condition to find the inflammatory process extending throughout the mucous membrane, covering larynx, pharynx, and nasal passage. When a horse swallows without difficulty and yet is so near suffocation as to make a noise during inspiration I conclude I have a case of laryngitis to deal with. When on the contrary respiration is normal but deglutition so difficult as to be accompanied by the return of fluids or even portions of food through the nose I am satisfied to name the condition pharyngitis. I am free to confess my differentiation of acute throat inflammations goes no further than this.

I have not always been successful in treating my throat cases, and this has enabled me to make some post-mortem examinations. I have found the pharyngeal membrane presenting every shade of red and in some one or two cases so dark a colour that it might be called black. In these cases there was the greatest amount of infiltration under and into the membrane I have ever seen, but I do not infer that œdema is always in direct ratio to the darkness of colour of the inflamed membrane. Ulceration of the throat in horses I have never seen, but I suppose it may occur. Abscesses I believe are formed under the pharyngeal membrane though I have no evidence of their existence on post-mortem examination.

The sudden improvement of some throat cases and the restoration of the power of deglutition upon a copious discharge from the nose having taken place, is I think only explainable upon the hypothesis that such an abscess had existed and given way.

As to treatment there are one or two things to be avoided. The first is never to administer fluids with the head raised. The least harm done by this proceeding is to produce coughing which increases the irritation. Immediate suffocation has frequently been caused; and I believe that inflammation of lungs has often been set up by medicated fluids passing down the trachea. The pneumonia so caused is sometimes traced to its proper origin, but not seldom is credited with being merely an extension of the throat inflammation. Another thing to avoid is leaving the horse tied up in a stall. The head should be left loose, and the airiest loose-box should be supplied for the patient. The next question in treatment is a controversial one Should we blister a sore throat? I think not. I allow that this question should be decided by our experience, and I know that our methods differ and our results are in the aggregate somewhat similar. Some practitioners, I believe, adopt a course of treatment and adhere to it entirely. This kind of experience is not helpful to others, as unless a man has tried different plans on similar cases he cannot make a comparative statement of value. If, however, a very large experience of one line of treatment be compared with as large an experience of some other line we may arrive at the truth. A meeting of this kind is just the place to obtain the results of diverse experience.

Perhaps I might safely and usefully refrain from any theoretical opinion, but I prefer to say why I do not use blisters either in pharyngitis or laryngitis. I have tried them and I have tried padding and poulticing. I fancy the blistered cases did not do so well as the others. I cannot believe that a blister on the outside of the throat can possibly reach the pharynx, and I am sure it adds to the pain and discomfort of the horse. I do not believe that a blister over the throat does any good in laryngitis, because it causes a lot of effusion all round the larynx which I should think must be inimical to the healing process, and rather liable to add to the obstruction in respiration.

I remember one case of a horse that had a slight sore throat and on which mustard was freely applied by the owner. In the course of two hours breathing was accompanied by such a noise that suffocation was feared and the message I received was "Come at once and bring a tube." Tracheotomy was not necessary and the noise abated in a few hours. This horse was a bad roarer and so cannot be accepted as an ordinary case, but I think it goes to prove that the production of effusion round a diseased larynx is accompanied by more evil than good effects.

Ordinary poulticing with bran is not advisable. It is difficult to keep in position and it is heavy. Hay steeped in hot water forms a good application and with a properly shaped hood or bag to retain it is very easily packed all round the throat. Cotton wool or sponge may also be used.

I prefer to try and apply any local medicaments in the form of an electuary. I do not use any sedatives. I mix powdered Acid Boracic with Theriacum until I reach a consistency which is easily used with a wooden spatula to smear on the tongue and teeth, leaving the horse to spread it further and possibly to swallow a portion.

In bad cases I fancy I have a good effect from syringing out the mouth with a warm saturated solution of boracic acid. Of course the head is not raised and the fluid mostly flows out of the mouth carrying with it mucus and saliva often of an offensive nature.

Tannin and glycerine I have used, but failed to trace any distinct benefit to them. Camphor and opium in electuary I have seen used, but am inclined to think it is only a waste of drugs.

I have not had an opportunity of trying cold water or iced water on a case of pharyngitis in horses but am very sanguine that it would do good. My faith in this method was inspired by its rapid and beneficial action on my own throat after medicated gargles and warm applications of bread and milk, etc., had quite failed to give relief. The iced water was advised by a friend—an army surgeon.

As a result of acute inflammation of the throat I have seen two rather rare sequelæ—fistula and paralysis of the pharynx.

The pharyngeal fistula had been in existence for three weeks when shown to me. It had resulted, said the owner, from a strangle abscess. The opening was very small, on the right side, high up in the maxillary space. A probe could be passed about three inches. Pus and mucus escaped during mastication. The opening healed occasionally but as frequently re-opened. I lost sight of the horse and nothing was done to it. Mr. Butters has recorded a much more marked case, which recovered, in *The Journal of Comparative Pathology*.

The only case of pharyngeal paralysis I have seen was near Birmingham. The patient was a valuable hunter. The major portion of everything taken into the mouth, either solid or fluid, was ejected through the nose. The act of mastication was normally performed, and the tongue and cheeks fulfilled their functions, but when swallowing was attempted coughing was induced and the food was violently ejected. The drinking of water was freely attempted, but most of it returned through the nose. The loose-box in which the horse stood was in a fearful condition—the walls being plastered with the ejected food. This condition had existed for some time, no acute disease was apparent, and no constitutional disturbance save what was traceable to want of nutriment. Manual examination found the pharynx a flaccid bag which did not contract in the slightest. Nux vomica in electuary was used, and frequent daily injections of cold water, with or without disinfectants. The case was in the hands of Mr. Parker, and in a few weeks made a complete recovery. It commenced with ordinary symptoms of a not very violent sore throat and gradually reached the condition I have described.

There is one more throat affection I should like to refer to because I have a strong opinion that it does not affect the horse, *i.e.*—diphtheria.

The diseases of animals which are transmissible to man are a most important class and it behoves veterinary surgeons to be very careful not to overlook any disease, even if it be trivial in its effects upon animals, which may be communicated to human beings.

I think it must be admitted that diphtheria has been communicated to some of the smaller animals from a diseased human being. I know no case in which it has been communicated to the horse. My experience includes no disease of the horse in which a diphtheritic formation has been found in the throat.

The formation of false membranes, *i.e.*, of a more or less firm layer on the mucus membrane of the upper air passages is almost unknown in equine practice. Two cases of horses which were removed from a burning stable are related in *The Veterinarian* as translations from a French report. One died, the other recovered after a very acute and critical illness. In both horses long strips and shreds of false membrane were coughed and sneezed up. In both "roaring" was a marked symptom and one horse died partly from shock and partly of suffocation.

This is not peculiar when we remember that flame, steam and boiling water have often caused similar lesions in man.

The late Professor Robertson in the first volume of the *Veterinary Journal* has related how five horses died of some disease which, after a post-mortem examination, he described as diphtheria. I do not care lightly to doubt any statement of Professor Robertson's, but I do not think he was quite justified in describing these cases as diphtheria.

If such a specific disease as diphtheria affected horses I think our practitioners could not have failed to notice it. The throat affections of the horse are many, and the attendants on sick horses are not remarkable for caution or niceness. Even during the prevalence of throat epidemics I never knew a case in which an attendant suffered, even in a mild way, from throat disease. All the facts and observations of veterinary practitioners seem to negative the hypothesis that the horse suffers from any throat affection transmissible to man.

Here is Professor Robertson's description of the outbreak :—"In both the outbreaks to be mentioned, the fatality was great ; amongst the horses all the affected animals—five in number—dying. In the greater number of both cases of these animals, although the local symptoms were severe and sufficiently diagnostic, the constitutional disturbance, fever, and prostration were certainly more marked.

As seen in the horses, the seizure was in every instance sudden : the animals, farm horses in good working condition, of different ages, apparently in the enjoyment of the fullest amount of health and vigour one day, were on the following found unaccountably ill ; two, indeed, were only noticed unwell in the evening, having worked all day and fed with their usual zest, both in the morning and at mid-day. Attention was first directed to the animals from their inability or disinclination to drink when offered water ; some pushed their noses into the trough or pail, and seemed attempting to swallow, but at once desisted, or the water returned by the nose. The breathing was at the same time noticed to be rather faster than natural, and the nose slightly pushed forward ; occasional muscular tremors at this time showed themselves, and the animals were rather restless or uneasy. There was little or no cough, and when it did exist, it seemed merely to result from attempts made to swallow. The glands of the throat were slightly swollen from the first, but certainly did not increase much during the period the animals lived. The temperature rose rapidly, and continued high until shortly before death ; while the pulse was accelerated about one half, but was considerably less in volume and force. In one case there were well-marked symptoms of abdominal pain from the outset of the disease, with no abdominal organic lesion observable after death to account for these. In this instance there was also very noisy breathing ; this, however, was accounted for at the post-mortem examination which showed more extensive involvement of the larynx and trachea than any of the others. None of these animals lived over the fifth day, and two of them died within forty-eight hours.

The structural changes met with in all these cases were confined to the upper air-passages, only one extending into and beyond the larynx. The membrane covering the fauces, pharynx, tonsilitic cavities, and the posterior surface of the velum, was tense and glistening from the infiltration of the submucous tissue, was much heightened in colour, in some parts of a chocolate hue, and covered throughout with a tenacious and adherent mucus; while in patches, some larger than others, this tenacious mucus was replaced by, or seemed converted into, a more or less distinct film of a greyish colour; these spots or patches seemed disposed to run into each other, as well as to have originated from independent centres. They were not, even in the same individual, of the same texture or consistency: at some patches the granular or grumous material could hardly be spoken of as membranous, and was easily removed by simply scraping with the back of a knife; at other spots it could be torn off or lifted entire by pulling with a pair of forceps, its tenacity in these cases being considerable. In no instance was this exudation, either when distinctly membranous or only jelly-like and granular, very extensive: that is, passing in a continuous line or band around the cavity. The submucous tissue was much thickened from infiltration, wherever it was heightened in colour. The glandular structures in the region of the throat were slightly enlarged, more vascular, and softer than in health; with, however, no effusion or infiltration in their surrounding areolar tissue."

Professor Robertson's cases certainly read like diphtheria but it is impossible to believe that five horses should have died so suddenly from a specific disease, and yet no other practitioner be able to quote from his own experience any similar cases. The very fact of all being affected at once does not look like a contagious disease. It rather suggests some local cause acting at once on all the horses and without any period of incubation.

Your experience, gentlemen, will be valuable on this question.

EXTRACTS AND NOTES.

THE TSETSE FLY PLAGUE.

Interesting Discoveries.

An instructive article is contributed by Mr. H. Blandford to a recent number of *Nature*, in which he deals in an exhaustive manner with the ravages committed by this diminutive but most terrible scourge to live stock, and which is the most formidable impediment to colonisation in Equatorial and South Africa. Mr. Blandford says that the peculiarities of the fly and "fly disease" have been made familiar by most other African travellers, Livingstone, Anderson, Chapman, Selons, &c.

What the Fly is Like.

The tsetse is a dipterous insect, of no striking appearance, grey, with darker stripes on the thorax, and a pale or yellowish abdomen furnished with two dark spots on the anterior portion of each segment; it is rather larger than the house fly, but is narrower when at rest, the wings overlapping. The mouth parts form a powerful, piercing, and suctorial beak. Local in distribution, the fly occurs in numerous detached regions of Africa south of the equator, its headquarters appearing to be along the Zambesi and its tributary the Chobe. "Fly country" is hot, moist, and low alluvial ground, along river banks, covered with forest or scrub vegetation, and uninhabited save by wild animals. Within its sharply-defined limits, which may extend along one bank only of a river, the tsetse swarms; it is extremely active, and eagerly attacks man or animals for the purpose of sucking blood. On man no effect is produced beyond temporary irritation, of which the extent has been very variously described, probably in accordance with the idiosyncracy of the victims. Wild animals do not suffer; but domestic animals which have entered fly districts, are seized in the course of a few days with fever and wasting, and almost invariably die. Horses and dogs rapidly succumb, while goats, donkeys and unweaned calves are said by some travellers to be resistant; this however, is not generally true of the two former kinds.

Partial Immunity.

Slight non-fatal attacks confer no immunity, but some native breeds of dogs enjoy partial protection, although a certain number of pups in each litter perish. Books of African travel are full of records of horses, teams of oxen, or herds of native cattle having been destroyed by entering fly districts, and on one occasion a Masai army proceeding to the attack of a neighbouring tribe, was effectually routed by having incautiously crossed fly country. For some years the accounts of fly disease were not seriously questioned, until in 1870 a Mr. St. Vincent Erskine endeavoured to show that it was due solely to change of grass or climate, and severely criticised Livingstone's account, forgetting that the proper course lay in attempting to reconcile the apparent discordance between his own and other observations. Since then Hartmann Marno, Falkenstein, and other travellers who found either the fly present and disease absent, as on the Loango coast, or the reverse, have further discredited the earlier statements, and so eminent a dipterologist as Van der Wulp, in summarising the evidence, has concluded that the tsetse is not injurious, or that its ill-effects are exaggerated. Nevertheless travellers, especially in the Zambesi district, while adding nothing to our knowledge, have constantly reaffirmed the connection between the fly and the disease. One or two naturalists have, indeed, hit the truth, and among them Schoch, who in an ably-reasoned little paper, concluded that the facts pointed, not to the action of a specific fly virus, as was originally supposed, but to the transmission of a bacterial poison matter. It will be seen that this conclusion is substantially correct.

Result of Investigation.

Mysterious as has been the connection between the tsetse and the animal disease endemic in its haunts, there has been never any reason to doubt that a properly conducted investigation would throw much light on the subject. At last, on behalf of the Natal Government, such a research is being made by Surgeon-Major Bruce, and the results of the first three months' work are just published. They are of great interest, and are full of promise that our knowledge of this disorder will be placed at least on a level with that of kindred diseases. Dr. Bruce, in a somewhat brief recapitulation of the characteristics and habits of the fly, adds one important new fact, of which he appears scarcely to recognise the significance. The fly investigated, which is not necessarily Westwood's species, is viviparous, giving birth to an adult larva, which creeps about actively in search of a hiding place, where, in the course of a few hours, it changes by the usual skin-hardening, to a jet black puparium. Fly disease or Nagana (a Zulu term, aptly signifying to be low or depressed in spirits) is due, according to Dr. Bruce, to the presence in the blood of a flagellated infusorian. This hæmatozoon is of elongate form, furnished with a membrane or fin running along one side of the body, and a flagellum at one end. It is intimately allied to, if not actually identical with, "Trypanosoma evansi," the hæmatozoon of "Horse Surra." At present Dr. Lingard, the leading authority on that

Indian animal disease, hesitates to regard the two complaints as the same, because Surra does not attack cattle. But when it is recollected that Nagana pursues a much slower course in cattle than in horses, and that wild game are immune to it, just as African sheep are to anthrax, the objection does not seem very formidable.

Cause of the Disease.

The hæmatozoa of Nagana make their appearance which is signalised by a rise in temperature, in the blood after an incubation period of seven to 20 days, swimming actively among, and apparently "worrying" the corpuscles. With the progress of the disease they increase in numbers, and at the time of their host's death, may amount in the dog, to 310,000 per cub. mm. of blood! Neither reproductive nor any other stages of the parasite are yet known, nor has it been found in the blood of any wild animal, inoculation of which (the best test for the presence of the hæmatozoon) has hitherto failed to produce disease. Dr. Bruce has demonstrated that it is possible repeatedly to feed Tsetse on a healthy dog without producing disease in that animal—that is, the flies possess no specific venom; but that, if allowed to draw blood from a diseased animal or the carcase of one, they will communicate Nagana to any healthy animals on which they are subsequently fed, and the same result is obtained by inoculation of diseased blood, or, in dogs, by feeding them on the flesh of an animal dead of Nagana. Thus far is the cause of the disease ascertained, as is the fact that the Tsetse can serve as a transmissive agent; but the natural source, other than diseased animals whicharenot known to occur in a wild state, whence the flies obtain the parasite is still undetermined, nor is it proved that, unlike malaria, the disease cannot be acquired by breathing the air of the fly-country. Repeating an old experiment of Captain Vardon's Dr. Bruce has shown that a few hours' sojourn in a fly-district is sufficient exposure to induce the disease in a horse, which is prevented from eating and drinking there; but to complete the proof that the flies are indispensable as carriers of infection, it has further to be shown that domestic animals, if protected from their bites, can remain in such a region with impunity. As yet Dr. Bruce has not been able to make the experiment, but it may be observed that the concurrent testimony of many travellers, that animals can safely cross a fly-country on nights when the insects are inactive, goes to prove that the infection is not air-borne.

JAPANESE HORSES, PAST AND FUTURE.

One of the many subjects connected with national defence which is engaging public attention at the present moment in Japan is the improvement for military purposes of the existing breed of horses. With their usual thoroughness the Japanese have commenced by investigating the history of the horse in the country, and the department of agriculture has issued a report on the subject. From this it appears that allusions to horses abound in the earliest records, so that they must have been in use from a very remote era, though it is not known whether they were introduced by the conquering race or were used by the aboriginal inhabitants. Subsequently horses were continually imported from the continent and chiefly from Korea. In the early part of the 16th century, when communication with Europe began, Italians and Portuguese introduced Arab horses into the southern island, and in the 18th century the reigning Shogun employed a Dutchman to import sires from Persia and to take charge of breeding establishments. A Persian horse which died at one of these establishments in 1742 had a tombstone, which still exists, erected to his memory. During the same century horses were frequently imported from Persia. In 1867 the Emperor Napoleon presented the Shogun with 26 Algerian sires and mares, and it it chiefly from these stocks that the present Japanese hybrids are derived. The compiler of the official record thinks that the Imperial Court in ancient times always desired the improvement of the breed of horses, but that, when the Shoguns, or military usurpers, came into power, the breed declined. This curious circumstance is due, no doubt, to the fact that on account of the nature of the country cavalry never formed an essential part of a Japanese army. As to the horse of the future in Japan, the Vice-Minister of Agriculture has published an essay discussing the whole subject. He thinks there is no need for any distinction in breeding between horses designed for military uses and those for the ordinary purposes of life. Austria is the only country in which such a distinction is observed. Next, he does not think the proposal to supplant wholly the present native breed by the importation of sires and dams is a practiceable one, and no such experiment has ever been tried elsewhere. The native breed must be improved by crossing with foreign stallions. In this way all the famous strains in Europe and America have been produced. Japanese ponies must in the course of centuries have produced qualities rendering them peculiarly suitable for their surroundings; hence the best native breeds should be preserved and perfected and crossed with the best foreign breeds, such as the Arab and the English. In addition sires and dams of th e best breeds should also be imported to ascertain whether they can be perpetuated in Japan, with or without modification. The Vice-Minister specially desires to see horses imported from Australia and New Zealand.

A PLAGUE OF ACARI.

A curious incident, which occasioned considerable disquietude amongst the inhabitants, occurred recently at Barfleur (Manche). A young girl, a native of Barfleur, came on a visit to her parents from Cherbourg, where she was in service. During her stay at home she consulted a medical man with a view of ridding herself of a parasite which she had brought from Cherbourg, and which, having multiplied with prodigious rapidity, had infested the house of the patient's parents and also that of a relative. Sulphur was burnt in the house, and the linen and flooring were washed with sublimate solution. The plague continuing with undiminished intensity the neighbours ceased visiting the infected houses and sent the denizens thereof "to Coventry." The authorities then took the matter in hand and delegated M. Edmond Perrier, Member of the Institute and Professor at the Museum of Natural History of Paris, to investigate this mysterious malady. He sood discovered that the *origo mali* was the Glyciphagus domesticus, an acarus closely allied to the acarus scabiei, but unlike the latter, provoking scarcely any itching or cutaneous lesions in its hosts. This acarus is, it appears, very commonly present in houses, and it is frequently met with in the interstices of hair-combs which are badly kept. It multiplies especially in houses in which organic debris accumulate. In groceries an acarus, the Glyciphagus prunorum, which is perhaps identical with the Glyciphagus domesticus, often flourishes on dried fruits, such as prunes and figs. Feeding exclusively on organic matter it is only a pseudo-parasite. Besides the Glyciphagus domesticus there was discovered in these same contaminated houses at Barfleur a false scorpion, the othonius, which had invaded them in the train of the first-named parasite. The othonius, otherwise called the *pince des bibliothèques*, is the declared enemy of the Glyciphagus domesticus, upon

which it feeds exclusively. Three millimetres long, and resembling a tailless scorpion, it is recognisable by its long fore-claws shaped like the lobster's. The young Barfleuraise had at Cherbourg been a servant at a pork-butcher's, and it was probably at the *charcuterie* that she became infected. Her scalp was so full of acari that when she shook her head a cloud of them fell on her shoulders. Her father, a respectable fisherman, had his eyebrows attacked, the only symptom being a slight irritation. A garment left by the girl at an aunt's had sufficed to infect an exceptionally clean house. M. Perrier ordered the evacuation of the houses and sulphur to be burnt during six hours in the sealed-up rooms, with the result of killing every acarus, as also the othonius. An eau de Cologne and sublimate lotion relieved the persons of the sufferers of the parasite, although the treatment had to be prolonged in the case of the girl. The case is interesting in that the acarus, caught at a pork butcher's, had lain dormant for some time on the hair-comb, and transferred thence to the scalp had thriven therein for a period of eighteen months and invaded consecutively the garments. From the garments the parasite had spread to two houses and their inhabitants and the othonius had promptly followed in pursuit.—*The Lancet.*

"CRUELTY" CASE AT NORTON.

Improper Firing.

Dawson Steel, an unqualified "vet." of Sherburn, was charged with cruelty to a horse by causing it unnecessary pain during an operation performed by him. The charge was brought by Inspector Waters, R.S.P.C.A., of Scarbro', and Mr. T. W. Mitchell, solicitor, Malton, defended, a plea of not guilty being put in.

Inspector Waters, in opening the case, said the owner of the horse was Mr. Laycock, of the Pigeon Pie Hotel, Sherburn. Defendant on the 26th May undertook to perform an operation, the horse having suffered from enlarged hocks. The operation was performed most improperly, and he quoted a case decided in the Queen's Bench to show that where unnecessary pain was caused to an animal the case came within the Act. Defendant had no qualification whatever to practise in any way, and no doubt that accounted for him performing the operation improperly. If the Bench convicted he did not wish to press the case against him, but would merely point out that he performed the operation unskilfully, and thereby caused unnecessary pain.

Charles Laycock said he was the owner of a bay gelding three years old. The horse had been suffering from enlarged hocks from birth.

Mr. Mitchell said they could shorten the case by it being stated that the operation was firing.

Witness said he agreed for defendant to fire the horse. He went away, and when he came back he saw the bleeding, and the following morning he stopped defendant blistering it. There was a little discharge on the day it was done, but not much. Mr. Ringrose saw the horse afterwards at his own request. On the 30th May the hock was swollen, but he could not say it discharged.

In answer to Mr. Mitchell, witness said he had known defendant a long time, and he had always been satisfied with his treatment of his horses. Mr. Ringrose invited himself to see the horse. He said something about it in the train, and mentioned about it being squared, but witness thought it was all chaff. The horse had eaten its food allright since, and when turned out into the field galloped round for five minutes. He should say there was nothing out of the ordinary course.

By the Inspector: Defendant was sober, or he would not have been allowed to touch it.

Sergt. Stebbings said he saw the horse on the 29th ult. Both hocks had been fired. The horse seemed to be tender to the touch, and blood and matter were oozing out of the wounds. Defendant said he had fired a great many horses, but admitted that he had no qualification. The firing appeared to be deeper than usual. Defendant afterwards said he had not fired any horses for two years.

Inspector Waters said he saw the horse on May 30th. It was in good condition. Both hocks had been fired, one having nine incisions and the other eight. They were discharging matter. He afterwards saw defendant, who said it had been done properly. Defendant afterwards said he had not done any for two years, and that he had another to do, but was waiting till he saw what they did in this case. The horse had been fired too deeply.

Jonathan Ringrose, veterinary surgeon, Weaverthorpe, said he saw the horse on Thursday, May 28th. He was asked by Mr. Laycock to have a look at him. He said "You have had a bit of rough treatment here; you have been firing. I must say it's a rough job." There was some matter running from the lower part of the hock. The horse was not blistered. He saw the horse again on the Saturday at Inspector Waters' request. There was then a good deal of discharge from the hock. The operation was clumsily done. The conditions were not consistent with a proper process of firing. It was not usual for so much discharge to set up. The iron had gone below the skin. The incisions were deeper in some places than others, but they should be as level as possible. Unnecessary pain had been inflicted. If skilfully done the conditions he found would not be set up.

In reply to Mr. Mitchell, witness said the hot iron was not properly sharpened, and it penetrated through the skin. He had seen the iron, which belonged to Mr. Poad, of Ruston. He admitted that one of the objects of firing was to set up inflammation, or it was no use firing. The sheath of the tendon was cut, and that would cause unnecessary pain. He was not aware that the sheath was non-vascular. It was wrong to submit that it was so. He did not invite himself to see the horse. Mr. Laycock asked him, and Mr. Laycock would be saying what was not true if he said he asked himself. He guarded against doing so. They had some chat about it in the train, and Mr. Laycock asked him to go to his house after he had been chaffing him about it. He had not said anything about champagne. That was all gammon. He did not lay the inflammation on which this summons was brought. He did not inform anyone about it. If the horse had been blistered he would not say whether the suppuration would be going on.

The Bench dismissed the case without calling upon the defence at all. There were three or four witnesses, including a veterinary surgeon, waiting to be called for the defence. Mr. Mitchell asked for costs, but the Bench declined to grant them.

The following comments on the above appeared in the editorial column:—

The action of the Norton Bench on Saturday, June 20th, in dismissing the charge of cruelty against the Sherburn "vet." without hearing the defence seems to be a somewhat hasty and peremptory procedure. Four witnesses testified that the operation had been so performed as to cause unnecessary suffering, and it would have been no more than common justice to have heard both sides of the case, even if only to give the defendant the opportunity of clearing himself from blame in the matter. Such a course as that adopted, though probably in strict accord with legal etiquette, is equivalent to a verdict of "Not proven," which does not vindicate the defendant nor satisfy the prosecution. It also tends to throw unfair opprobrium on the R.S.P.C.A. by giving

casual readers the impression that the prosecution was unjustified, therefore the merits of the case would have been more adequately determined if both the pros and cons had been related.—*The Malton Gazette.*

IMPORTS OF AGRICULTURAL PRODUCE.

Agricultural Produce Imported into the United Kingdom in the Four Months ending 30th April, 1896.

Horses	No.	13,587
Cattle	„	181,493
Sheep	„	301,996
Bacon	cwts.	1,459,863
Beef :		
Salted	„	83,551
Fresh	„	798,933
Hams	„	408,174
Meat unenumerated :		
Salted or fresh	„	103,836
Preserved, otherwise than by salting	„	239,888
Mutton, fresh	„	1,050,042
Pork :		
Salted (not Hams)	„	91,789
Fresh	„	96,313
Rabbits	„	49,535
Butter	„	1,060,244
Margarine	„	322,935
Cheese	„	472,867
Milk, condensed or preserved	„	184,293
„ and cream, fresh	gallons	3,791
Eggs	gt. hundreds	3,389,786
Corn :		
Wheat	cwts.	20,516,560
Wheat Meal and flour	„	7,721,090
Barley	„	6,162,950
Oats	„	3,679,800
Maize	„	16,672,520
Fruit :		
Apples	bushels	861,264
Pears	„	2,565
Hops	cwts.	86,452
Onions	bushels.	1,727,307
Potatoes	cwts.	176,650
Tallow and Stearine	„	821,906
Poultry and game	value £	301,548
Vegetables (unenumerated)	„	349,560

THE MUSHROOM INDUSTRY OF PARIS.

A recently published volume of the United States Consular Reports contains detailed information on the culture of Mushrooms in France. The following account is given regarding the cultivation and preserving of mushrooms in Paris, where the industry would appear to have become one of tremendous proportions, involving extensive skill and labour, and employing a capital of about £1,600,000.

Mushrooms are cultivated in caves specially prepared for their growth. They grow every day in the year, each day producing a new crop or growth, though cultivators of this vegetable divide them into four seasons, which they call autumn, winter, spring, and summer beds. They are planted, or rather the beds are prepared, about three months before they begin to bear, and when once started they continuously bring forth large quantities each day, regulated more or less according to the atmosphere of the caves, which is governed by the dryness or dampness of the weather, until the soil is entirely exhausted.

Growers of this vegetable say that a mushroom bed bears daily for about three months, and at the end of the period the soil is exhausted of its substance, and new beds, which three months previously had been prepared, then begin to bear; hence it is that this vegetable is found fresh in the markets every day in the year.

One of the most interesting sights around Paris is the mushroom caves, which are nothing more or less than tunnels containing, at intervals of a few feet, small beds of horse manure mixed with virgin soil. The caves where mushrooms are grown are especially prepared, and great care and attention is given to their keeping and perfect preservation. The temperature varies but little in summer or winter, and only climatic influences, that is to say, a very dry or very wet season, more than one of heat or cold, tends to affect the daily production of the beds. The mushrooms are gathered every morning, trimmed, washed, and sorted according to size and quality preparatory to marketing. Those that are to be preserved are sent to the factories for canning, where they are again washed in salt and water, selected and separated according to quality, and then slightly cooked before being being placed in tins. After the tins have been closed and soldered they are then boiled again in order that they may be more perfectly preserved. Mushrooms are never washed in salt water unless for preserving purposes.

TAR-BRANDING OF SHEEP.

The Board of Agriculture have received communications from the Halifax and Huddersfield Chambers of Commerce, intimating that local representations have been made by wool spinners and manufacturers as to the inconvenience resulting from the branding of sheep with tar and similar substances. It is represented that a large quantity of wool used in the manufacture of carpets and similar productions does not undergo the process of sorting, and thus it frequently happens that, in spite of endeavours to take out tar-marked wool, the tar-marks pass through the various stages into the finished goods, thereby causing considerable damage and loss. It has been suggested that if flock-masters and others were made generally aware of the fact that tar is not dissolved in the ordinary processes of wool-washing, discussion might be usefully elicited as to whether, with a due regard to the interests of sheep farmers, it would be possible, in any case, to limit the present use of tar in marking sheep.

The feasibility of effecting any improvement in the methods of application, either by making the branding irons smaller, or by more careful mixing, to prevent the tar from running, may also be a matter not unworthy of consideration by practical wool-growers.

Journal of Board of Agriculture.

The Poisoned Flesh Prohibition Act.

The case of Rogers *v.* Hull, which was heard before Justices Cave and Wills on June 13, was an appeal, by way of special case, from the decision of Justices at Leyton under the Poisoned Flesh Prohibition Act. The respondent was charged with having on December 13th, 1895, knowingly placed upon certain land meat impregnated with poison and calculated to destroy life, but the Magistrates refused to convict, holding that the respondent had not committed an offence under the statute. It appeared that the respondent was a pigeon-fancier, and in consequence of the annoyance he had been sub-

jected to by cats, he placed some poisoned meat in a pigeon-house in his garden for the purpose of killing cats. A neighbour's cat and his own collie dog ate some of the meat and died. Section 3 of the Act provides that nothing in the Act should make it unlawful for an occupier of any dwelling-house or other building, or the owner of any rick or stack of wheat, barley, oats, peas, or any cultivated vegetable produce, to put or place, or cause to be put or placed in any such dwelling-house, or within such rick or stack, &c., any poisonous ingredients or preparation for the destruction of rats, mice, or other small vermin. In this case the pigeon-house was nailed to a wall in the respondent's back garden, and was about five feet from the ground, and, therefore, it was argued it was not on land within the meaning of the statute. Mr. Justice Cave said he was of opinion that the case must go back to the magistrates with an expression of opinion on the part of the Court that they ought to have convicted. Mr. Justice Wills concurred.—*Chemist and Druggist.*

PARLIAMENTARY.

Locomotives on Highways Bill.

Mr. Chaplin moved the second reading of this Bill, which has been passed through the House of Lords. He said the measure was designed to facilitate and encourage the use and construction of what were called in the Bill light locomotives, with a view to affording to the public a convenient and cheap mode of progression and transport, which was largely made use of at the present time on the Continent of Europe and in America, but which was not yet available to the public in England. There was no doubt that in this matter we were greatly behind other countries—(hear, hear)—and it was a singular commentary on our backwardness that all the principle patents for the manufacture of locomotives of this description were in the hands of foreigners. (Hear, hear.) The object of the Bill was to remove what he would not but regard as a great reproach, and to enable the public in this country to enjoy the facilities which were enjoyed in other countries. He hoped the Bill would not be regarded as so contentious as the Bill (the Agricultural Rating Bill) he had just been conducting, seeing that a Bill of a similar character had been introduced by the late Government. A light locomotive under the Bill was described as a vehicle propelled by mechanical power; it was to be under four tons unladen, not emitting any smoke or visible vapour; it was not to draw more than one vehicle, and their united weights were to be under four tons unladen. The use of such locomotives was practically prohibited under the present law, as three persons had to be in attendance to conduct a road locomotive, one walking in front with a red flag, and the speed must in no case exceed four miles an hour, and in towns two miles, while the wheels must be not less than three inches in width; and there was a licence of £10. The Bill would remove all these disabilities, and under it a light locomotive would be deemed to be a carriage within the meaning of any Act of Parliament, public, general, or local. The Bill provided that the Local Government Board should be empowered to make regulations with respect to the use of these light locomotives on highways and bridges, in respect of speed, either in town or country, the carrying of lights—hear, hear)—and other matters. The question of taxation would also have to be considered. As this was a new experiment, the Government were open to consider any suggestions made from any quarter, coming from persons conversant with the subject, which might tend to improve the character of the measure. (Hear, hear.) He believed the Bill was calculated to be an eminently useful one, giving great satisfaction to the public, and leading to an enormous development of trade and the giving of a vast amount of employment. (Hear, hear.) It was possible that motor cars might become rivals, and even dangerous rivals, to light railways—(laughter)—and he thought it was not unlikely that they might tend to decrease the amount of railway fare now paid. He was convinced that they would be a great boon to the agricultural interest, enabling farmers to transport their produce wherever they wished to send it at much less cost than at present (Hear, hear.) He hoped the House would share his opinion that this measure would be generally advantageous to the public, and when the Bill had been read a second time he proposed to send it to the Standing Committee on Law, so that every point connected with it might be thoroughly threshed out. (Hear, hear.)

Dr. Tanner said he was sorry that the right hon. gentleman, whom he had been accustomed to look up to as the soul of English sport, and who was the friend of the poor agriculturist, should have become a touter from these non-sporting machines. (Laughter.) Where they were in vogue people said they were a beastly nuisance—(laughter)—in Paris the police were trying to do away with them, and he would ask the right hon. gentleman whether he knew what had been done about them in Vienna. He believed there had been an attempt to exclude them even from Jerusalem. (Laughter.) In a bad season, one of them would damage a road to the amount of £500. He had that morning overheard the cabby that drove him to the House say to a constable, "Don't let him vote for them blessed autos." (Laughter.) He felt therefore that he was fulfilling a mission. (Renewed laughter.) The Bill was taking them from the known to the unknown, from the ordinary London gondola to the auto-car, and he hoped the right hon. gentleman was not preparing himself for an auto da fé. (Laughter.)

Mr. Humphreys-Owen criticised the Bill in some detail, suggesting that power should be given to County Councils to regulate the use of traction engines and the conditions under which they should be allowed to travel. He did not wish to oppose the second reading of the Bill, but it was one which would require to be most carefully considered in a Standing Committee. (Hear, hear.)

Mr. Hobhouse thought they would all agree that the Bill was of great practical importance, and he congratulated the Government on having brought it forward. Most of them would wish to remove all restrictions in the law which at present unduly fettered enterprise and invention. At the same time they must be careful that they did not remove all proper safeguards for the safety of the public and for the interests of the ratepayers. There was every reason to fear that, if the Bill passed in its present shape, a serious burden must be thrown upon the ratepayers, especially in country districts, in connection with the maintenance of the roads. He could not help thinking that it would be well to restore the Bill to its original shape, and allow this experiment to be carried out on a comparatively small scale at first.

Mr. Daly, as an Irish member, viewed the introduction of the Bill with disfavour. Cabdrivers, cardrivers, and others earning their money by horses had a right to look upon this Bill with considerable suspicion. There would be great danger in running carriages by petroleum.

Mr. Renshaw pointed out that great consideration would have to be paid to anything the local authorities might do to maintain roads for the use of these motor carriages.

Mr. Luttrell supported the Bill, believing that in the long run the attempts to utilise these motor cars would be satisfactory. Besides the regulation in the power of the Local Government Board for the speed there should also be power to regulate the width of the wheel.

Mr. Martin believed the time had come for encouraging mechanical motion rather than horse traction on roads. The use of machines would, he thought, tend to

improve the stamp of horses by encouraging the breed of a class of animals superior to the many weedy ones now employed.

Mr. MUNDELLA approved of the powers given in the Bill for the use of motor carriages. We owed it to excessive regulation that we were so much behind in the use of electricity and the telephones. (Hear, hear.)

It was a subject in which both sides were interested, for everybody wished to encourage English industry. (Hear, hear). There was no fear, in his opinion, that the measure would injure the breed of horses, and he hoped it would pass this session. (Cheers).

The measure was read a second time, and referred to the standing Committee on Law.

OUTBREAKS OF BLACKLEG IN YOUNG CATTLE.

In various localities unusual numbers of cases of blackleg, more technically termed symptomatic anthrax, have recently occurred. This may have resulted from the repeated spells of warm close weather, which forced most forms of vegetable life, and may have favoured the development of the particulate bacilli and spores. The outbreaks have cropped up in districts in which they have previously appeared, on farms and even in particular fields which have acquired an unenviable reputation for "breeding the disease." They are less frequent on arable farms than on those with large areas of permanent pasture, evidently because the old grass, if contaminated by the bacilli and spores, presents the conditions favourable for the preservation of their activity for periods of several years. Fortunately, however, lands notoriously liable to produce blackleg, for a season or two, sometimes for a continuance of years, enjoy perfect immunity. Whether this irregularity in the prevalence of the complaint depends on local or seasonal conditions affecting the development of the infecting spores, or on varying susceptibility of the young cattle, we have no means of knowing. There must be a good deal of virus about, or notable susceptibility in the young stock, when, as reported from a Midland English district, an owner of twenty yearlings has lost eight since May Day; while in another lot of forty-eight yearlings, nine have died, as well as two January-dropped calves. As most stock-breeders are aware, cattle from six to twenty-four months are most susceptible to blackleg. Above this age they are less liable; young calves are very seldom attacked. Sheep, if inoculated, take the disease as readily as cattle, but are not so frequently attacked in the fields.

In Shropshire are farms where the deaths from blackleg range from 15 to 40 per cent. of the stock under three years old. Fortunately, however, such heavy losses do not recur every season. The enzootic nature of the disease is evident from the proportion of farms, even in widely and seriously affected districts, on which the disease has never been known, or on which, after intervals of years, only one or two cases have occurred. There is seldom any appreciable difference in the soil, water supply, management, or class of cattle on such affected farms, as compared with those adjacent which are unaffected. Although attacks usually occur in cattle at grass chiefly during summer or autumn, cases also appear amongst those in the yards living on cut grass in summer, and in the courts in winter, when the feeding consists mainly of roots and hay. One Shropshire farmer, who until five years ago had frequent visitations, but meanwhile has been exempt, this summer has lost six young animals, and blames the drought diminishing the water in his pools so seriously that the cattle were described as "drinking a quantity of mud," in which he suggests "the specific organisms have abounded."

It is satisfactory to find stockowners thus recognising that blackleg depends on the particulate bacilli and their spores. The entrance of these into the bodies of young bovines is unquestionably the cause of the disease. The puzzling matter is to trace their entrance in the food or water, possibly in the air breathed, or occasionally through wounds in the feet or elsewhere. Blackleg is more widespread and serious in the middle and southern parts of England than in Scotland, mainly because of the higher summer temperature, and the greatly larger areas of old pasture which have become affected from previous attacks. Still more prevalent is it in most parts of continental Europe, and especially in southern France, Switzerland, Austria, and Germany. In these countries in some seasons upwards of 2 per cent. of the young cattle are attacked, and as in this country recovery is very exceptional. In recent years the respective Governments have encouraged preventive inoculation with matter from the diseased swellings carefully attenuated. Many thousand young cattle are thus inoculated usually behind the shoulder, with one, occasionally with two, injections. This treatment appears to be generally successful, a trifling percentage only suffer from local swellings or other untoward results, and the consensus of opinion amongst these foreign authorities is that amongst the inoculated the mortality is less than one-eighth of that amongst the non-inoculated herded with them. But no such satisfactory results have hitherto been obtained in this country. Indeed, experiments with vaccin, obtained from the foreign laboratories or prepared by British experts from approved instructions, have produced irregular, violent, and sometimes fatal effects, have not secured immunity either in cattle or sheep, and, for the present, British stockowners are advised to adopt safer measures for limiting the spread of blackleg.—*North British Agriculturist.*

"A SINFUL FRAUD."

From the weekly paper *To-Day*, we take the following miserable twaddle:—

"I am merely quoting from *The Morning Post*:—"Death of a Pasteur Patient.—A shocking death from hydrophobia is reported from Stockport. Thomas D. Lambert, aged twenty, was bitten fifteen months ago by a mad dog, which also bit several other persons in Stockport, Withington, and elsewhere. He was taken to the Pasteur Institute, and treated there, at the expense of the Corporation. A few days ago, however, he developed signs of madness, and he died in terrible agony on Saturday." I forget how many this makes. It is some number between two hundred and fifty and two hundred and seventy; and meanwhile, we are waiting for one authentic case proving that any person suffering from hydrophobia has ever been cured by the Pasteur method. Poor Thomas D. Lambert was unfortunate. though, no doubt, the Stockport Corporation meant kindly.

A policeman, I gather from the local paper, also bitten by the same dog that bit Lambert, was likewise sent over to Paris for treatment by the Pasteur Institute. This man, it is stated, has also since died from hydrophobia. He and poor young Lambert make two more victims for this sinful fraud of Pasteurism. It has been exposed over and over again, but there is a certain class of medical men so blinded by devotion to the system of vivisection, that they think Pasteur's method of treating hydrophobia must be correct, merely because it was founded and is maintained by employment of that method. The next century will stand aghast at our folly in this matter, and another generation of medical scientists will be occupied with contemptuous denunciations of the ignorance and madness that once made a Pasteur inoculation a medical fetish."

ACQUIRED BIRD VOICES.

There are many species which, even in a wild state, copy the notes of other birds. How truthfully, for instance, does the starling imitate the song of the yellow-hammer, the pipe of the wryneck, the call of the curlew, and the speech of a score of birds besides. Perhaps we hardly realise how large a part mimicry plays in even the best known of bird songs.

It is more than a hundred years since the Hon. Daines Barrington—so familiar to us as the correspondent of White of Selborne—expressed the opinion that "notes in birds are no more innate than language is in man." He found that three young linnets, taken from the nest, learned the songs respectively of the skylark, the woodlark, and the tree pipit; and, further, that one of these linnets, although hung up in a cage for three months in the same room with two of its own species, which sang their natural notes, kept strictly to its acquired language, and did not borrow any passage from the songs of the linnets. Even more wonderful things have been done by house-sparrows. Barrington trained one to sing like a goldfinch. Mr. A. H. Macpherson has recently described another "which was taken when quite young from a nest in a pump and brought up in a cage with canaries, and which sings just like a canary, only better." To carry out such experiments satisfactorily, the birds must be taken from the nest when not more than a day or two old, before they have had time to learn the notes of their parents. And yet we cannot by any means disregard the influence of heredity. It has been shown that young golden plovers, which had been hatched in an incubator, piped, as soon as they could run, like the old birds, whose notes they never could have heard.—*Daily News.*

Seventeen Bullocks Poisoned.

To the Editor of the Hereford Times.

SIR,—In these bad times it is sad to hear of any farmer having sustained a serious and unavoidable loss. I heard on Wednesday last in the Cattle Market that Mr. Gough, of the Priory Farm, Clifford, accidentally had 17 bullocks poisoned by eating saffron. Very much sympathy was expressed by a lot of people, and a suggestion was made that it would be well to get up a subscription to help him to meet his serious loss.

I shall be pleased to give £5 towards it, and I know a friend who has volunteered to do the same. Many others have expressed their wish to subscribe to it.

CHARLES WATKINS.

The Hereford Brewery, Hereford,
June 18th, 1896.

OBITUARY.

J. M. KEIR, Student, Glas. Vet. Coll.

Recent graduates from this Institution will regret to learn of the death of Mr. J. M. Keir, student which occurred on Saturday, 27th ult. after a somewhat painful illness.

The funeral from deceased's residence in Glasgow was attended by some 40 students, whilst at the burial place at Partmore, Perthshire, the College was represented by Messrs. J. Todd, H. G. Simpson, J. Marshall, and J. Crawford who placed a handsome wreath on the coffin as "a last token of respect from his fellow students."

THE ANIMALS THERMOMETER.
(PATENTED.)

Suggested by PROFESSOR HOBDAY.

A thermometer, especially designed to indicate a fair average normal temperature for each of the domesticated animals and the fowl, in health, was introduced by Professor Hobday to the notice of the members of the Central Veterinary Medical Association at their meeting in December last. It differs from the thermometer in general use at present, by the fact that arrows are added at intervals on the stem to mark the average normal rectal temperature of each of the domesticated animals and the fowl; in the usual thermometer the only arrow is placed at 98°·4, indicating the normal average of man when taken by the mouth or axilla. The results are based upon about 2,000 observations made with one of Arnold & Sons' Kew Tested Thermometers, during a period of twelve months, on a large number of animals and birds in various parts of England under varying conditions. As shown in the sketch the horse is placed at 100·2dgs., the cow, dog, and cat at 101·4dgs., the pig at 102·6dgs., the sheep at 104dgs., and the fowl at 107dgs. In taking these figures into account, as pointed out at the meeting, one must be aware that confinement exercise, work, excitement, food, age, external temperature and other things, tend to cause variations to a greater or less extent, according to the temperament and conditions of the animal under observation. Price, in nickel-plated case, complete 3s. 6d. Patentees and manufacturers Arnold & Sons, of West Smithfield, London.

CORRESPONDENCE.

NATIONAL VETERINARY ASSOCIATION.

SIR,

May I ask for a small space in your paper to say that the committee of the Eastern Counties V.M.S. has arranged, on the occasion of the excursion to the Broads on July 9th, for the steamer to be at Wroxham Station (G.E.R.) in time to catch the 3.30 train which has through connections with all the towns in the Midlands and North of England, so giving members the opportunity of arriving home on the night of July 9th if desired.—Sincerely yours,

WM. SHIPLEY.

Southtown, Great Yarmouth,
30th June.

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED:—Messrs. C. T. Lang, W. Shipley, E. W. Hoare, J. A. W. Dollar, H. G. Simpson, G. Mayell, Frank Sare.

Journal of Agriculture (Cape), *The Malton Gazette.*